

CLAIMS

1. A method of producing an electrode-membrane assembly for a fuel cell by coating one of positive and negative electrode diffusion layers with a substrate layer, coating the substrate layer with one of positive and negative electrode layers before the drying of the substrate layer, coating the electrode layer with a hydrocarbon solid polymer with a solvent added thereto before the drying of the electrode layer to form an electrolyte membrane, coating the electrolyte membrane with the other of the positive and negative electrode layers before the drying of the electrolyte membrane and superposing on the other electrode layer before the drying of the other electrode layer a two-layer body formed by coating the other of the positive and negative electrode diffusion layers with a substrate layer to produce an electrode-membrane assembly, said method comprising the steps of:

drying preliminarily the electrode-membrane assembly in its non-dry state at a temperature not exceeding the decomposition temperature of the hydrocarbon solid polymer;

placing the preliminarily dried electrode-membrane assembly in vapor to introduce vapor into the electrolyte membrane;

removing the solvent from the electrolyte membrane with the vapor introduced thereinto; and

drying finally the electrode-membrane assembly having the solvent removed from the electrolyte membrane at a temperature not exceeding the decomposition temperature of the hydrocarbon solid polymer.

2. The method of claim 1, wherein the removing of the solvent from the electrolyte membrane is performed at a temperature not exceeding the decom-

position temperature of the hydrocarbon solid polymer.

3. The method of claim 1 or 2, wherein the electrode-membrane assembly in its non-dry state is held under no load, or a load of 1.5 kPa or less when the solvent is removed from the electrolyte membrane, and the electrode-membrane assembly having the solvent removed from its electrolyte membrane is held under no load, or a load of 1.5 kPa or less when the electrode-membrane assembly is finally dried.

4. The method of any one of claims 1 to 3, wherein the solvent is at least one selected from N-methyl-2-pyrrolidone, dimethylacetamide, dimethyl sulfoxide, N,N-dimethylformamide and  $\gamma$ -butyrolactone.